RESEARCH DEPARTMENT

TRANSMITTING AERIAL FOR THE MORECAMBE BAY V.H.F. SOUND STATION

Technological Report No. RA-2/3
UDC 621.396.712 1967/15

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for Head of Research Department

April 1967

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INTRODUCTION

The Morecambe Bay v.h.f. sound relay station came into operation on the 29th August 1966. It provides a sound service to the Morecambe Bay area, including the towns of Lancaster, Barrow, Carnforth and Fleetwood.

SUMMARY OF INSTALLATION

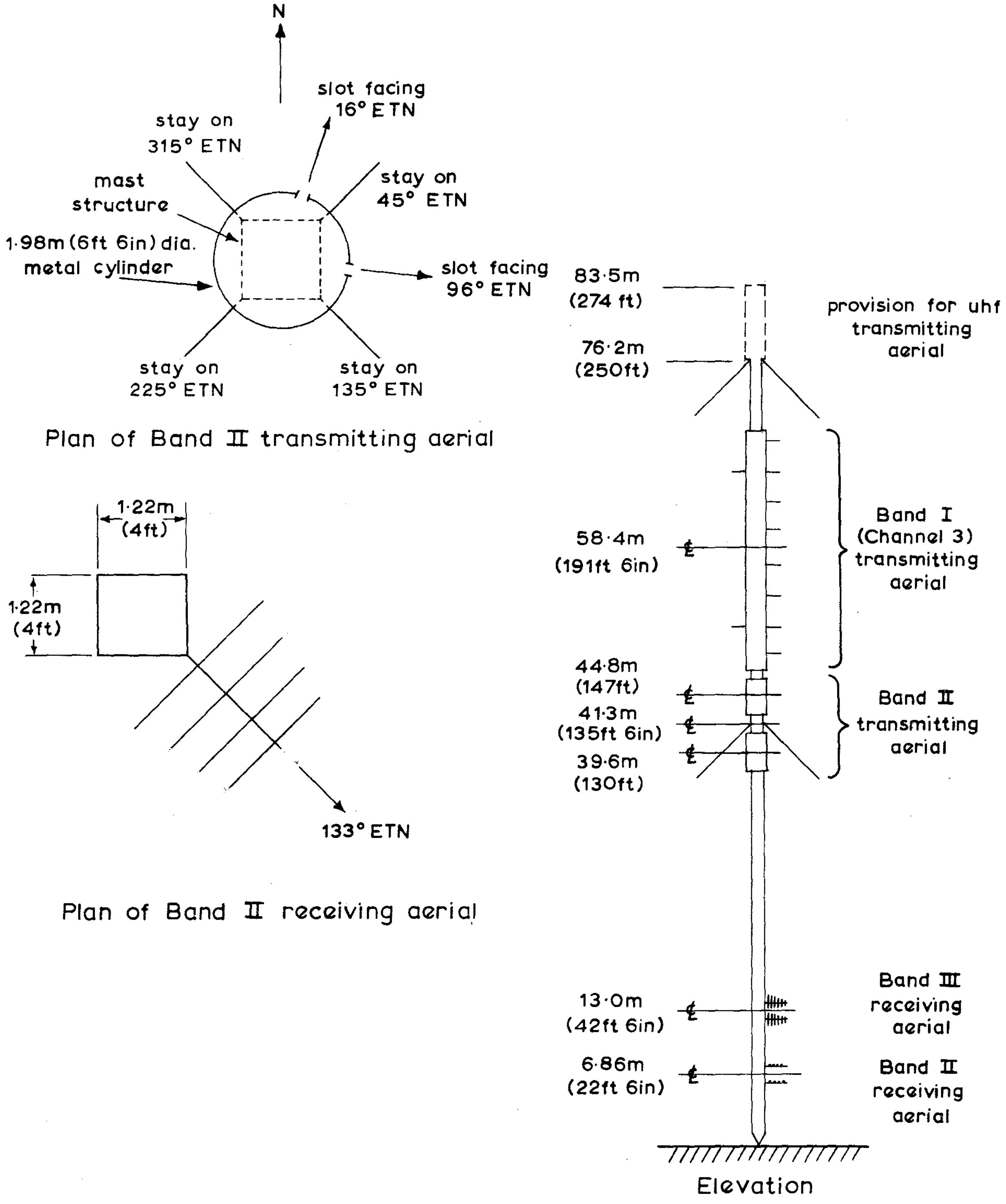
Site:	The site is at Standish Cote, approximately 9·7 km north north-east of Barrow, grid reference SD 239791, height 256 m a.m.s.l.		
Support Structure:	The support structure consists of a 76·2 m (250 ft) stayed mast of 1·22 m (4 ft) square cross-section with stays oriented along bearings of 45°, 135°, 225° and 315° ETN.		
General Arrangement:	See Fig. 1.		
Carrier Frequencies:	90·0 (Light), 92·2 (Third) and 94·4 (Home) MHz.		
Aerial:	The aerial[1] consists of two tiers, centred on a height of 41·3 m (135 ft 6 in.) a.g.l. Each tier consists of two longitudinal slots in the surface of a 3·66 m (12 ft) length of 1·98 m (6 ft 6 in.) diameter metal cylinder. The slot orientations relative to the axis of the mast are 16° and 96° ETN. The slots are fed with co-phased voltages but the slots on bearing 16° ETN are fed with half amplitude voltage compared to the slots on bearing 96° ETN. The inter-tier spacing is 1·58λ. There are independent main feeders to each tier.		
Power:	A transmitter power of 900 watts is used for each programme.		
Templet and horizontal radiation pattern (h.r.p.):	See Fig. 2 and note.		
Gain:	Mean intrinsic gain		2·9 dB
	Deduct: loss due to distribution feeder and possible misalignment		0·3 dB
	Mean net gain		2·6 dB
	Deduct: loss due to main feeder type HM11	0·5 dB	
	Network loss	0·9 dB	1·4 dB
	Mean effective gain		1·2 dB
Programme Source:	Programme is provided by direct pick-up of the transmissions from Holme Moss.		
Note:	The form of the aerial is such that the h.r.p. can be calculated accurately.		

REFERENCES

1. Detailed information on the construction and dimensions of the aerial is given on the following drawings held by BBC Transmitter Planning and Installation Department.

PID 7048.2.1A	General Arrangement of Aerial
PID 7048.2.28K	Cylinder Assembly

JMP



Plan of Band II transmitting aerial

Plan of Band II receiving aerial

Elevation

Fig.1. General arrangement of aerials on mast

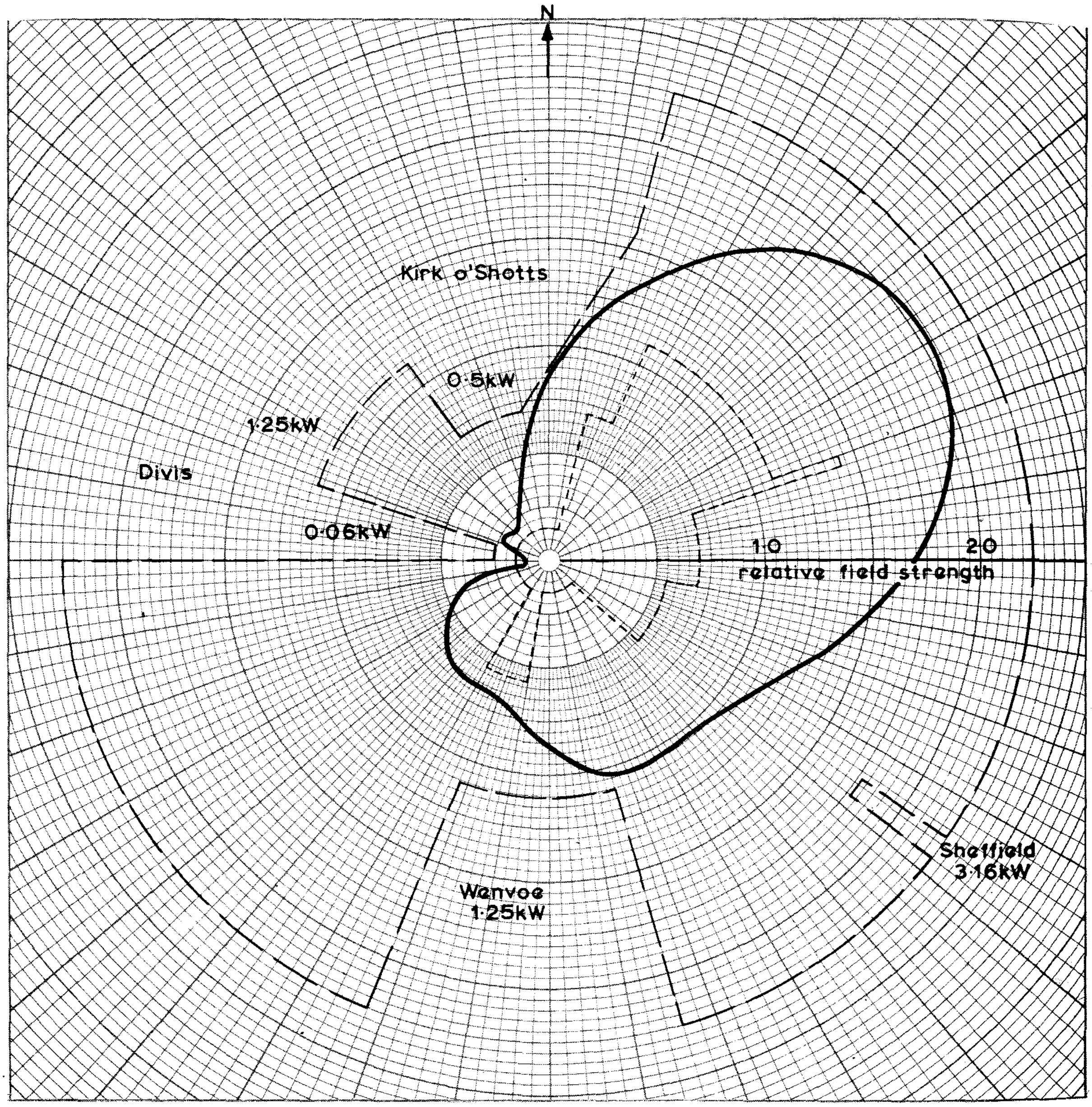


Fig. 2. Templet and horizontal radiation pattern
HORIZONTAL POLARIZATION
90·0 (Light), 92·2 (Third), 94·4 (Home) MHz.
Mean effective gain: 1·2dB —— —— Maximum permissible E.R.P.
Transmitter power: 900W ------ Minimum desirable E.R.P.
Mean E.R.P.: 1,190W
Unit field corresponds to an E.R.P. of 1kW